

107070-120.ST25.txt  
SEQUENCE LISTING

*Subj. title  
S1ed  
11-30-01*

<110> Hildt, Eberhard  
Hofsneider, Peter

<120> Particles for Gene Therapy

<130> 107070-120 (VOS-013)

<140> US 09/890,752

<141> 2001-08-03

<150> PCT/DE00/00363

<151> 2000-02-04

<150> DE 199 04 800.2

<151> 1999-02-05

<160> 21

<170> PatentIn version 3.1

<210> 1

<211> 347

<212> PRT

<213> Artificial Sequence

<220>

<223> Fusion protein comprising a LHBs and heterologous binding site RGD

<400> 1

Met Gly Arg Gly Asp Gly Ala Gly Ala Phe Gly Leu Gly Phe Thr Pro  
1 5 10 15

Pro His Gly Gly Leu Leu Gly Trp Ser Pro Gln Ala Gln Gly Ile Leu  
20 25 30

Glu Thr Leu Pro Ala Asn Pro Pro Pro Ala Ser Thr Asn Arg Gln Ser  
35 40 45

Gly Arg Gln Pro Thr Pro Leu Ser Pro Pro Leu Arg Asn Thr His Pro  
50 55 60

Gln Ala Met Gln Trp Asn Ser Thr Thr Phe His Gln Thr Leu Gln Asp  
65 70 75 80

Pro Arg Val Arg Gly Leu Tyr Phe Pro Ala Gly Gly Ser Ser Ser Gly  
85 90 95

Thr Val Asn Pro Val Pro Thr Thr Val Ser Pro Ile Ser Ser Ile Phe  
100 105 110

Ser Arg Ile Gly Asp Pro Ala Leu Asn Met Glu Asn Ile Thr Ser Gly  
115 120 125

Phe Leu Gly Pro Leu Leu Val Leu Gln Ala Gly Phe Phe Leu Leu Thr  
130 135 140

Arg Ile Leu Thr Ile Pro Gln Ser Leu Asp Ser Trp Trp Thr Ser Leu  
145 150 155 160

107070-120.ST25.txt

Asn Phe Leu Gly Gly Thr Thr Val Cys Leu Gly Gln Asn Ser Gln Ser  
165 170 175

Pro Thr Ser Asn His Ser Pro Thr Ser Cys Pro Pro Thr Cys Pro Gly  
180 185 190

Tyr Arg Trp Met Cys Leu Arg Arg Phe Ile Ile Phe Leu Phe Ile Leu  
195 200 205

Leu Leu Cys Leu Ile Phe Leu Leu Val Leu Leu Asp Tyr Gln Gly Met  
210 215 220

Leu Pro Val Cys Pro Leu Ile Pro Gly Ser Ser Thr Thr Ser Thr Gly  
225 230 235 240

Pro Cys Arg Thr Cys Thr Thr Pro Ala Gln Gly Thr Ser Met Tyr Pro  
245 250 255

Ser Cys Cys Cys Thr Lys Pro Ser Asp Gly Asn Cys Thr Cys Ile Pro  
260 265 270

Ile Pro Ser Ser Trp Ala Phe Gly Lys Phe Leu Trp Glu Trp Ala Ser  
275 280 285

Ala Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe Val Gln Trp Phe  
290 295 300

Val Gly Leu Ser Pro Thr Val Trp Leu Ser Val Ile Trp Met Met Trp  
305 310 315 320

Tyr Trp Gly Pro Ser Leu Tyr Ser Ile Leu Ser Pro Phe Leu Pro Leu  
325 330 335

Leu Pro Ile Phe Phe Cys Leu Trp Val Tyr Ile  
340 345

<210> 2  
<211> 215  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Fusion protein comprising a HBcAg, a cell-permeability-mediating polypeptide and heterologous binding site RGD

<400> 2

Met Pro Leu Ser Ser Ile Phe Ser Arg Ile Gly Asp Pro Thr Val Gln  
1 5 10 15

Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile Asp Pro  
20 25 30

Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu Pro Ser  
35 40 45

Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser Ala Leu  
50 55 60

## 107070-120.ST25.txt

Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His His Thr  
 65 70 75 80  
 Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr Leu Ala  
 85 90 95  
 Thr Trp Val Gly Val Asn Leu Glu Asp Pro Glu Phe Arg Gly Asp Ala  
 100 105 110  
 Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
 115 120 125  
 Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
 130 135 140  
 Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
 145 150 155 160  
 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
 165 170 175  
 Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
 180 185 190  
 Pro Ser Pro Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
 195 200 205  
 Gln Ser Arg Glu Pro Gln Cys  
 210 215

<210> 3  
 <211> 663  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> DNA coding for a fusion protein comprising a HBcAg, a  
 cell-permeability-mediating polypeptide and heterologous  
 binding site RGD

<400> 3	
atgccccatat cgtcaatctt ctcgaggatt ggggaccctg gatccactac tggcaagcc	60
tccaaaggctgt gccttgggtg gctttggggc atggacatcg acccttataa agaatttgga	120
gctactgtgg agttactctc gttttgcct tctgacttct ttcccttcagt acgagatctt	180
ctagataccg cctcagctct gtatcggaa gccttagagt ctcctgagca ttgttcacct	240
caccatactg cactcaggca agcaattctt tgctgggggg aactaatgac tctagctacc	300
tgggtgggtg ttaatttggaa agatccagaa ttccgaggcg acgcgtctag agacctagta	360
gtcagttatg tcaacactaa tatgggccta aagttcaggc aactcttgcg gtttcacatt	420
tcttgcctca cttttggaaag agaaaccgtt atagagtatt tgggtgtcttt cggagtgtgg	480
attcgcactc ctccagctta tagaccacca aatgccccta tcctatcaac acttccggaa	540
actactgttg ttagacgacg aggcaggtcc cctagaagaa gaactccctc gcctcgcaga	600

107070-120.ST25.txt

cgaaggcttc aatcgcccg	tcgcagaaga tctcaatctc	ggAACCTCA	atgttagtat	660
tcc				663

<210> 4  
<211> 1047  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> DNA coding for a fusion protein comprising a LHBs and heterologous binding site RGD

<400> 4						
atggccgtg	gcgaaggagc	tggagcatt	gggctgggtt	tcacccacc	gcacggaggc	60
cttttgggt	ggagccotca	ggctcagggc	atactacaaa	cttgcacgc	aaatccgcct	120
cctgcctcca	ccaatcgcca	gacaggaagg	cagcctaccc	cgctgtctcc	acctttgaga	180
aacactcatc	ctcaggccat	gcagtggaaat	tccacaacct	ttcaccaaac	tctgcaagat	240
cccagagtga	gaggcctgta	tttccctgct	ggtggctcca	gttcaggagc	agtaaaccct	300
gttccgacta	ctgcctctcc	cttacgtca	atcttctcga	ggattgggga	ccctgcgctg	360
aacatggaga	acatcacatc	aggattccta	ggaccccttc	tcgtgttaca	ggcggggttt	420
ttcttgtga	caagaatcct	cacaataccg	cagagtctag	actcgtggtg	gacttctctc	480
aattttctag	ggggaaactac	cgtgtgttctt	ggccaaaatt	cgcagtcggcc	aacctccaaat	540
cactcaccaa	cctcctgtcc	tccaaacttgt	cctggttatc	gctggatgtg	tctgcggcgt	600
tttatcatct	tcctcttcat	cctgctgcta	tgcctcatct	tcttgggtt	tcttctggac	660
tatcaaggta	tgttgcctgt	ttgtcctcta	attccaggat	cctcaaccac	cagcacggga	720
ccatgccaa	cctgcatgac	tactgctcaa	ggaacctcta	tgtatccctc	ctgttgctgt	780
acccaaacctt	cggacggaaa	ttgcacctgt	attcccatcc	catcatcctg	ggcttcgga	840
aaattcctat	gggagtgggc	ctcagccctgt	tttcctggc	tcaagttaact	agtccattt	900
gttcagtgg	tctgttagggct	ttccccact	gtttggcttt	cagttatatg	gatgtatgtgg	960
tattggggc	caagtctgta	cagcatctt	agtcctttt	tacccgtt	accaattttc	1020
ttttgtcttt	gggtatacat	ttaaacc				1047

<210> 5  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 5

ccatattctt ggaaacaaga tatccagcac gggc

35

<210> 6  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Primer

<400> 6  
 ggattgctgg tgaaagatat ctgccccgtg ctg

33

<210> 7  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Primer

<400> 7  
 cagcacgggg cagatatctt ccaccagcaa tcc

33

<210> 8  
 <211> 38  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Primer

<400> 8  
 gccccgtgct ggatatcatc ttgttcccaa gaatatgg

38

<210> 9  
 <211> 36  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Primer

<400> 9  
 aaaagatctg gccgtggcga aggagctgga gcattc

36

<210> 10  
 <211> 30  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Primer

<400> 10  
 aaaagatctg gtttaaatgt atacccaaag

30

107070-120.ST25.txt

<210> 11  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 11  
cccgatatac tgtcatctct tgttcatgtc cta 33

<210> 12  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 12  
ggggatatcg gtcgatgtcc atgccccaaa 30

<210> 13  
<211> 36  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 13  
gggggatccc gatgtacggg ccagatatac gcgttg 36

<210> 14  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 14  
gggggatccg cggccgcctt acttgta 27

<210> 15  
<211> 57  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<220>  
<221> misc\_feature  
<222> (1)..(57)  
<223> Nucleotides 1-3 and 55-57 are "n" wherein "n" = any nucleotide.

## 107070-120.ST25.txt

<400> 15	nnnagatcta tgcccatatc gtcaatcttc tcgaggattg gggaccctgg atccnnn	57
<210> 16		
<211> 30		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<220>		
<221> misc_feature		
<222> (1)..(3)		
<223> Nucleotides 1-3 "n" wherein "n" = any nucleotide.		
<400> 16	nnnggatcca ctgttcaagc ctccaagctg	30
<210> 17		
<211> 36		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<220>		
<221> misc_feature		
<222> (1)..(3)		
<223> Nucleotides 1-3 "n" wherein "n" = any nucleotide.		
<400> 17	nnngaattct ggatcttcca aatthaacacc caccca	36
<210> 18		
<211> 39		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		
<220>		
<221> misc_feature		
<222> (1)..(3)		
<223> Nucleotides 1-3 "n" wherein "n" = any nucleotide.		
<400> 18	nnngaattcc gaggcgacgc gtctagagac ctagtagtc	39
<210> 19		
<211> 30		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Primer		

107070-120.ST25.txt

<220>  
<221> misc\_feature  
<222> (1)..(3)  
<223> Nucleotides 1-3 "n" wherein "n" = any nucleotide.

<400> 19  
nnnaagctt cccccaccta tgagtccaaag

30

<210> 20  
<211> 12  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> cell permeability-mediating peptide

<400> 20

Pro Leu Ser Ser Ile Phe Ser Arg Ile Gly Asp Pro  
1 5 10

<210> 21  
<211> 36  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> DNA encoding cell permeability-mediating peptide

<400> 21  
cccatatcgt caatcttctc gaggattggg gaccct

36